

The opinion in support of the decision being entered today is not binding precedent of the Board.

Paper 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FRANK T. SECCO D'ARAGONA,
DAVID D. OLIVER and RAYMOND C. WELLS

Appeal 1997-1618
Application 08/368,078¹

Before: WILLIAM F. SMITH, Administrative Patent Judge,
McKELVEY, Senior Administrative Patent Judge, and KRATZ,
Administrative Patent Judge.

McKELVEY, Senior Administrative Patent Judge.

MEMORANDUM OPINION and ORDER
Decision on appeal under 35 U.S.C. § 134

Upon consideration of the Appeal Brief (Paper 12) and the Examiner's Answer (Paper 13), it is

ORDERED that the examiner's first rejection
(Examiner's Answer, page 4) of claims 1-3, 5-9, 11 and 13-19

¹ Application for patent filed 3 January 1995. The real party in interest is Motorola, Inc.

Appeal 97-1618
Application 08/368,078

as being unpatentable under 35 U.S.C. § 103 over (1) prior art admitted by applicant (Fig. 2), (2) Ito '435, (3) Nomura and (4) Ito '857 is reversed.

FURTHER ORDERED that the examiner's second rejection (Examiner's Answer, page 11) of claims 3, 11 and 17 as being unpatentable under 35 U.S.C. § 103 over (1) prior art admitted by applicant (Fig. 2), (2) Ito '435, (3) Nomura and (5) Mattson is reversed.

FURTHER ORDERED that the examiner's third rejection (Examiner's Answer, page 12) of claims 2, 4, 10 and 12 as being unpatentable under 35 U.S.C. § 103 over (1) prior art admitted by applicant (Fig. 2), (2) Ito '435, (3) Nomura, (4) Ito '857 and (6) Maeda is reversed.

||||| @ |||||

Grouping of claims

1. With respect to the first rejection, claims 3, 5-9 and 11 stand or fall with claim 1. Claim 10 stands or falls with claim 2.

2. With respect to the second rejection, claims 11 and 17 stand or fall with claim 3.

3. With respect to the third rejection, claims 4, 10 and 12 stand or fall with claim 2.

4. Hence, at most it would be necessary to consider only claims 1-3. However, as will become apparent, we need consider only the broadest claim, which is claim 1.

The claimed invention

5. The invention is readily understood by reference to Figs. 1 and 3 of applicants' drawings and claim 1, which reads (matter in brackets, drawings and drawing numbers added):

A method of bonding two wafers, comprising the steps of:

- [1] providing an (sic--a) first wafer **12** having a first major surface **14** and a second major surface and having a rounded edge;
- [2] providing a second wafer **10** having a first major surface [surface adjacent first wafer] and a second major surface and having a rounded edge;
- [3] bonding the first wafer and the second wafer so that the first major surface of the second wafer is adjacent the second major surface of the first wafer; [Fig. 1]

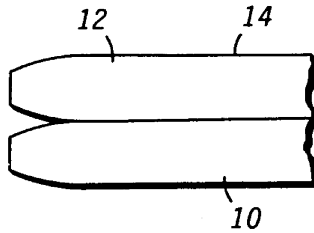


FIG. 1

and

- [4] removing a portion^[2] of the first wafer from the rounded edge into a portion of the first wafer [Fig. 3]

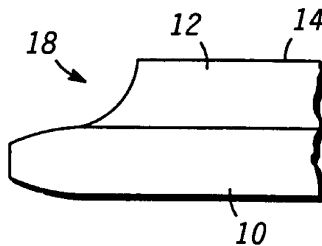


FIG. 3

² The specification explains the meaning of portion as follows: "[t]he grinding at edge **18** must remove substantially all of the portion of the active wafer **12** that is not supported by or not bonded to base wafer **10**" (specification, page 3, lines 30-32).

by grinding so that the second major surface of the first wafer is supported by the first major surface of the second wafer, after the step of bonding, and wherein the diameter^[3] of the second wafer remains essentially the same.

Discussion

The examiner's well-written answer bottoms the first rejection on the proposition that Nomura establishes that grinding and chemical etching are "interchangeable for their desired function" (Examiner's Answer, page 7). Thus, the examiner reasons that given the admitted prior art and Ito '435 processes of etching, it would have been obvious to use grinding in place of etching. While superficially plausible, the examiner's reasoning does not withstand penetrating analysis.

Applicants point out that "[t]he grinding apparatus of Nomura could not be used to grind away only the edge of the active wafer (see at least FIGSs. 3A and 6 of Nomura) ***" (Appeal Brief, page 4). Claim 1 on the other hand requires

³ The diameter is not shown in the drawings; it is understood that wafer are round (see Nomura, Fig. 1).

removal of "a portion of the first wafer from the rounded edge into a portion of the first wafer *** so that the second major surface of the first wafer is supported by the first major surface of the second wafer ***." The meaning of "portion" becomes clear upon consultation of the specification: "[t]he grinding at edge **18** must remove substantially all of the portion of the active [first] wafer **12** that is not supported by or not bonded to base [second] wafer **10**" (specification, page 3, lines 30-32). The Nomura process also removes a considerable portion of the second wafer such that "the diameter of the second wafer" does not remain "essentially the same" as required by claim 1. Accordingly, Nomura does not provide sufficient evidence upon which to support the obviousness of limitation of claim 1 which requires removal of "a portion of the first wafer from the rounded edge into a portion of the first wafer *** so that the second major surface of the first wafer is supported by the first major surface of the second wafer *** [and] the diameter of the second wafer remains essentially the same."

Claims 2 and 3 depend from claim 1. If the broad subject matter of claim 1 has not been shown to have been obvious over

Appeal 97-1618
Application 08/368,078

the prior art, it necessarily follows that the narrower subject matter of claims 2 and 3 likewise have not been shown to be unpatentable under 35 U.S.C. § 103.

Further observations concerning the specification

Our review of the specification reveals that there may be two errors on page 2, lines 27 and 29. It would appear that the references to FIG. 2 should be references to FIG. 1. Cf. page 3, line 24 and page 4, lines 12-13. The examiner and applicants' may wish to determine whether an amendment of the specification to correct the errors is in order.

REVERSED.

_____ WILLIAM F. SMITH, Administrative Patent Judge))))))	
_____ FRED E. McKELVEY, Senior Administrative Patent Judge))))))	BOARD OF PATENT APPEALS AND INTERFERENCES
_____ PETER F. KRATZ Administrative Patent Judge))	

Appeal 97-1618
Application 08/368,078

cc (via First Class mail):

Vincent B. Ingrassia, Esq.
MOTOROLA, INC.
Intellectual Property Department
Suite R3108
P.O. Box 10219
Scottsdale, AZ 85271-0219